

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant : Woodrow W. Pearce
Application No. : To Be Assigned
Filed : November 28, 2001
Title : VENTING CAP
Docket No. : 45955/CM/P369

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Post Office Box 7068
Pasadena, CA 91109-7068
November 28, 2001

Commissioner:

Prior to examination, please amend the above-referenced reissue application as follows:

In the Claims:

Please amend claims 18, 35, 37, 40 and add new claims 41-56 as follows:

1. A bottle cap for capping a bottle having a mouth having a rim, the cap comprising:
a top portion having an inner surface;
an annular wall extending from the top portion;
a plurality of concentric circular ridges formed on the top portion inner surface for registering with the rim; and
at least a slot formed across each of said plurality of ridges.
2. A bottle cap as recited in claim 1 comprising, wherein at least one slot is formed across all the ridges.

3. A bottle cap as recited in claim 1 wherein a slot in each ridge is aligned with a slot in a consecutive ridge for defining a single slot across said consecutive ridges.

4. A bottle cap as recited in claim 1 wherein the slot formed across one ridge is circumferentially spaced apart from a slot formed across an adjacent ridge.

5. A bottle cap as recited in claim 1 further comprising a liner fitted over the top portion inner surface, the liner having an opening formed through the liner thickness.

6. A bottle cap as recited in claim 1 wherein the top portion is hingedly coupled to the annular wall.

7. A bottle cap as recited in claim 1 further comprising a moveable spout extending from the top portion.

8. A bottle cap comprising:
a top portion having an inner surface;
an annular wall extending from the top portion; and
a groove formed on the inner surface of the top portion said groove extending chordwise from a first point adjacent the annular wall to a second point adjacent the annular wall.

9. A bottle cap as recited in claim 8 comprising a plurality of grooves formed on the inner surface of the top portion.

10. A bottle cap comprising:
a top portion having an inner surface;
an annular wall extending from the top portion;
a first set of parallel spaced apart grooves formed on the inner surface of the top portion; and
a second set of parallel spaced apart grooves formed on the inner surface of the top portion, wherein grooves of the first set intersect grooves of the second set.

11. A bottle cap comprising:
a top portion having an inner surface;
an annular wall extending from the top portion;
a plurality of grooves formed on the inner surface of the top portion; and
a liner fitted over the top portion inner surface, the liner having an opening formed through its thickness.

12. A bottle cap as recited in claim 8 wherein the top portion is hingedly coupled to the annular wall.

13. A bottle cap as recited in claim 8 further comprising a moveable spout extending from the top portion.

14. A vented bottle cap system comprising:
a bottle having a neck having a rim defining a mouth and threads formed on the neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck, wherein when the cap is threaded onto the bottle neck a gas path is formed between the outer surface of the bottle neck and the inner surface of the annular wall;

a plurality of concentric circular ridges formed on the inner surface of the top portion;
and

a slot formed across each of said plurality of ridges, wherein when the cap is threaded onto the bottle neck, the ridges sit on the bottle neck rim and the slots define a pathway for gas generated in the bottle to escape across the bottle neck rim and through the pathway.

15. A vented bottle cap system as recited in claim 14 wherein a slot in each ridge is radially aligned with a slot in an adjacent ridge.

16. A vented bottle cap system as recited in claim 14 wherein a slot in each ridge is circumferentially spaced apart from a slot in an adjacent ridge.

17. A vented bottle cap system as recited in claim 14 further comprising a liner fitted in the cap and having a hole through its thickness, wherein when the cap is threaded onto the bottle neck, the liner sits on the bottle neck rim and wherein gases generated in the bottle escape through the hole, through the slot and through the pathway.

18. (Amended) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth and threads formed on the neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck, wherein when the cap is threaded onto the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall; and

a groove formed on the inner surface of the top portion wherein when the cap is threaded onto the bottle neck, the groove extends beyond two locations of the rim of the bottle neck providing a pathway for gas generated in the bottle to escape across the bottle neck mouth and through the gas path.

19. A vented bottle cap system as recited in claim 18 comprising a plurality of grooves formed on the inner surface of the top portion, wherein each groove extends radially beyond the rim of the bottle neck when the cap is threaded onto the bottle neck.

20. A vented bottle cap system as recited in claim 19 comprising a first set of parallel grooves and a second set of parallel grooves formed on the inner surface of the top portion, wherein grooves of the first set intersect grooves of the second set.

21. A vented bottle cap system as recited in claim 18 further comprising a liner fitted in the cap and having a hole through its thickness, wherein when the cap is threaded onto the bottle neck, the liner sits on the bottle neck rim and wherein gases generated in the bottle escape through the hole, through the groove and through the gas path.

22. A method for venting gases generated in a bottle having a rim defining a mouth and containing a liquid, the method comprising the steps of:

providing a cap having a top portion, a plurality of circular ridges formed on an inner surface of the top portion and a slot formed across each of said plurality of ridges; and

torquing the cap on the bottle causing the plurality of ridges to sit on the rim, wherein the plurality of slots provide a pathway for the venting of gases.

23. A method as recited in claim 22 further comprising the steps of:

forcing liquid in the slot; and

solidifying the liquid to block the pathway through at least one of said slots.

24. A method for venting gases generated in a bottle having a rim defining a mouth and containing a liquid the method comprising the steps:

providing a cap having a top portion and a groove formed on an inner surface of the top portion; and

torquing the cap on the bottle causing the inner surface of the top portion to sit on the rim, wherein the groove extends outwardly beyond two locations of the rim and provides a pathway for the venting of gases.

25. A method as recited in claim 24 further comprising the steps of:

forcing liquid in the groove; and

solidifying the liquid to block the pathway through the groove.

26. A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth and threads formed on the neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck, wherein when the cap is threaded onto the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a disc made of a material being at least semi hard fitted over the top portion inner surface, the disc having a first surface opposite a second surface, wherein the first surface faces the top portion inner surface;

a circular ridge formed on the second surface of the disc; and

a slot formed across the ridge, wherein when the cap is threaded onto the bottle neck, the ridge sits on the bottle neck rim and the slot forms a pathway for gas generated in the bottle to escape across the bottle neck rim and through the gas path.

27. A vented bottle cap system as recited in claim 26 comprising:

a plurality of concentric ridges formed in the second surface of the disc, wherein when the cap is threaded onto the bottle neck, the plurality of ridges contact the bottle neck rim; and
at least a slot in each ridge.

28. A vented bottle cap system as recited in claim 27 wherein at least a slot in each ridge is radially aligned with a slot in an adjacent ridge.

29. A vented bottle cap system as recited in claim 26 further comprising a liner fitted in the cap over the disc and having a hole through its thickness, wherein when the cap is threaded onto the bottle neck, the liner is sandwiched between the ridge and the rim and wherein gases generated in the bottle escape through the hole, through the slot and through the gas path.

30. A vented bottle cap system as recited in claim 26 wherein the disc is made from plastic.

31. A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth and having threads formed on the bottle neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck outer surface, wherein when the cap is threaded onto the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a disc made of a material being at least semi hard fitted over the top portion inner surface, the disc having a first surface opposite a second surface, wherein the first surface faces the top portion inner surface; and

a first set of parallel grooves and a second set of parallel grooves formed on the second surface of the disc, wherein grooves of the first set intersect grooves of the second set,

wherein when the cap is threaded onto the bottle neck, the grooves extend radially beyond the rim of the bottle neck providing pathways for gas generated in the bottle to escape across the bottle neck mouth.

32. A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth and threads formed on the neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck outer surface, wherein when the cap is threaded onto the bottle neck a gas path is formed between the outer surface of the bottle neck and the inner surface of the annular wall;

a disc made from a material being at least semi hard fitted over the top portion inner surface, the disc having a circumferential edge and a first surface opposite a second surface, wherein the first surface faces the top portion inner surface;

a gap between the annular wall and the circumferential edge;
an opening formed through the thickness of the disc, the opening located within the bottle mouth when the cap is threaded onto the bottle neck;
a circular ridge formed on the first surface of the disc; and
a slot formed across the ridge, wherein when the cap is threaded onto the bottle neck, the ridge is located over the bottle neck rim and the opening and slot form a pathway for gas generated in the bottle to escape across the bottle neck and through the gas path.

33. A bottle cap liner disc for use with a cap for capping a bottle having a rim defining a bottle mouth and having an inner and an outer diameter, the disc allowing for the venting of gases generated in a bottle when the cap is threaded on the bottle, the disc comprising:

a first surface opposite a second surface and a thickness therebetween;
an opening formed through the thickness;
a circular ridge formed on the first surface of the disc; and
a slot formed across the ridge.

34. A bottle cap liner disc for use with a cap for capping a bottle having a rim defining a bottle mouth and having an inner and an outer diameter, the disc allowing for the venting of gases generated in a bottle when the cap is threaded on the bottle, the disc comprising:

a first surface opposite a second surface; and
a plurality of concentric circular ridges formed on the first surface of the disc; and
a slot formed across each of said plurality of ridges.

35. (Amended) An insert having an annular section for use with cap for capping a bottle having a rim defining a bottle mouth and having an inner and an outer diameter, the insert allowing for the venting of gases generated in a bottle when the cap is capping the bottle, the annular section forming an opening and comprising:

a first surface opposite a second surface;
a circular ridge formed on the first surface of the annular section; and
a slot formed across the ridge.

36. An insert as recited in claim 35 comprising a plurality of concentric circular ridges and a slot formed across each of said plurality of ridges.

37. (Amended) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, wherein when the cap is capping the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a venting member having an annular section defining an opening and made of a material being at least semi hard, the annular section having a first surface opposite a second surface and sandwiched between the cap inner surface and the rim wherein the first surface faces the cap top portion inner surface;

a circular ridge formed on the first surface of the annular section; and

a slot formed across the ridge, wherein when the cap is capping the bottle neck, the slot forms a pathway for gas generated in the bottle to escape through the opening and across the bottle neck rim and through the gas path.

38. A vented bottle cap system as recited in claim 37 comprising:

a plurality of concentric ridges formed in the first surface of the annular section; and
at least a slot in each ridge.

39. A vented bottle cap system as recited in claim 38 wherein at least a slot in each ridge is radially aligned with a slot in an adjacent ridge.

40. (Amended) A vented bottle cap system as recited in claim 37 therein the venting member is made from plastic.

41. (New) An insert as recited in claim 35 wherein the insert opening is located centrally through the insert.

42. (New) An insert as recited in claim 37 wherein the venting member opening is defined centrally in the venting member.

43. (New) An insert having an annular section for use with cap for capping a bottle having a rim defining a bottle mouth, the insert allowing for the venting of gases generated in a bottle when the cap is capping the bottle, the annular section forming an opening and comprising:

a first surface opposite a second surface; and

a groove formed on the first surface of the annular section extending from the opening.

44. (New) An insert as recited in claim 43 wherein when the cap is cap is capping the bottle, the groove extends beyond two locations on the rim.

45. (New) An insert as recited in claim 43 wherein the insert opening is located centrally through the insert.

46. (New) An insert as recited in claim 43 wherein the insert is made of plastic.

47. (New) An insert having an annular section for use with cap for capping a bottle having a rim defining a bottle mouth, the insert allowing for the venting of gases generated in a bottle when the cap is capping the bottle, the annular section forming an opening and comprising:

a first surface opposite a second surface; and

a groove formed on the first surface of the annular section, wherein when the cap is capping the bottle, the groove extends beyond two locations on the rim.

48. (New) An insert as recited in claim 47 wherein the insert opening is located centrally through the insert.

49. (New) An insert as recited in claim 47 wherein the insert is made of plastic.

50. (New) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, wherein when the cap is capping the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a venting member having an annular section defining an opening and made of a material being at least semi hard, the annular section having a first surface opposite a second surface and sandwiched between the cap inner surface and the rim wherein the first surface faces the cap top portion inner surface; and

a groove formed on the first surface of the annular section extending from the opening.

51. (New) An insert as recited in claim 50 wherein the groove extends beyond two locations on the rim.

52. (New) An insert as recited in claim 50 wherein the venting member opening is defined centrally in the venting member.

53. (New) A vented bottle cap system as recited in claim 50 therein the venting member is made from plastic.

54. (New) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, wherein when the cap is capping the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a venting member having an annular section defining an opening and made of a material being at least semi hard, the annular section having a first surface opposite a second surface and sandwiched between the cap inner surface and the rim wherein the first surface faces the cap top portion inner surface; and

a groove formed on the first surface of the annular section extending beyond two locations on the rim.

55. (New) An insert as recited in claim 54 wherein the venting member opening is defined centrally in the venting member .

56. (New) A vented bottle cap system as recited in claim 54 therein the venting member is made from plastic.

REMARKS

Claims 18, 35, 37 and 40 have been amended for clarity. Claims 41-56 have been added. No new matter has been added. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Respectfully submitted,
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By _____

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend claims 18, 35, 37, 40 as follows:

18. (Amended) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth and threads formed on the neck outer surface;

a cap having a top portion having an inner surface and an annular wall extending from the top portion, the annular wall having threads formed on its inner surface for threading onto the threads formed on the bottle neck, wherein when the cap is threaded onto the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall; and

a groove formed on the inner surface of the top portion wherein when the cap is threaded onto the bottle neck, the groove extends [outwardly] beyond two locations of the rim of the bottle neck providing a pathway for gas generated in the bottle to escape across the bottle neck mouth and through the gas path.

35. (Amended) An insert having an annular section for use with cap for capping a bottle having a rim defining a bottle mouth and having an inner and an outer diameter, the insert allowing for the venting of gases generated in a bottle when the cap is [threaded on] capping the bottle, the [disc defining] annular section forming an [a central] opening and comprising:

a first surface opposite a second surface;

a circular ridge formed on the first surface of the annular section; and

a slot formed across the ridge.

37. (Amended) A vented bottle cap system comprising:

a bottle having a neck having a rim defining a mouth [and threads formed on the neck outer surface];

a cap having a top portion having an inner surface and an annular wall extending from the top portion, [the annular wall having threads formed on its inner surface

for threading onto the threads formed on the bottle neck,] wherein when the cap is [threaded onto] capping the bottle neck a gas path is formed between outer surface of the bottle neck and the inner surface of the annular wall;

a venting member having an annular section [having a central] defining an opening and made of a material being at least semi hard, the annular section having a first surface opposite a second surface and sandwiched between the cap inner surface and the rim wherein the first surface faces the cap top portion inner surface;

a circular ridge formed on the first surface of the annular section; and

a slot formed across the ridge, wherein when the cap is [threaded onto] capping the bottle neck, the slot forms a pathway for gas generated in the bottle to escape through the opening and across the bottle neck rim and through the gas path.

40. (Amended) A vented bottle cap system as recited in claim 37 therein the [insert] venting member is made from plastic.